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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/811,145

03/29/2004

Dae-sik Kim

Q74902

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12/29/2005

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EXAMINER

BLACKMAN, ROCHELLE ANN J

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/811,145

Applicant(s)

KIM ET AL.

Examiner

Rochelle Blackman

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3-8 and 10-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8 and 10-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 3-8, and 10-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 recites "a color separator", which is already recited in claim 1, from which claim 18 depends upon.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-8, and 10-13 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Taoka et al. (U.S. Patent Application Publication No. 2005/0213045).

Regarding claim 1, Taoka discloses a projection system (see Figs. 8, 26, 30, and 31, comprising: a light source (see 1 of Figs. 8, 26, 30, and 31); a color scanner (see 4 and 11 of Figs. 8, 26, 30, and 31) including a scrolling unit (see 4) and a driving source (see 11) for rotating the scrolling unit so that a plurality of color bars are scrolled, wherein the scrolling unit includes a plurality of spirally-arranged lens cells (see 4 and 4A of Figs. 8, 26, 30, 31, and 34) and converts a rotation of the plurality of spirally-arranged lens cells into a rectilinear motion of a lens array (also see 4, 4A) of the scrolling unit through which light passes; a light valve (see 7R, 7G, 7B in Figs. 8, 26, 30, and 31), which electrically scans the plurality of color bars according to an input image signal; and a control circuit (see 12-15, 21, 22, 31, 32, 41, 42 of Figs. 8, 26, 30, and 31), which renders optical scanning of at least one of a plurality of color bars in phase with electrical scanning of the light valve by an image signal, wherein the color bars are formed on the light valve due to a rotation of the scrolling unit; and a color separator (see 6a of Figs. 8, 26, 30, and 31), disposed between the color scanner and the light valve, which separates light from said light source according to color.

Regarding claim 3, Taoka discloses wherein the control circuit comprises a driving source controller (see 13 of Figs. 8, 26, 30, and 31) which controls the driving source so that the optical scanning of the at least one color bar is in phase with the electrical scanning by changing a rotation of the driving source according to a phase offset value which represents a phase difference between the optical scanning and the electrical scanning.

Regarding claim 4, Taoka discloses wherein: the control circuit further comprises a reference phase generator (see 12 of Figs. 8, 26, 30, and 31) which generates a reference phase signal and provides the reference phase signal to the light valve; and the electrical scanning of the light valve is performed based on the reference phase signal, and the phase offset value is determined based on the reference phase signal (see function of 12 in Figs. 8, 26, 30, and 31).

Regarding 5, Taoka discloses wherein the phase offset value is determined by the steps of: providing an electrical scanning including image information for all colors to the light valve based on the reference phase signal (see function of 14 in Figs. 8, 26, 30, and 31); scanning the plurality of color bars on the light valve based on the reference phase signal (see function of 4 in Figs. 8, 26, 30, and 31); and adjusting phases of scanning of the color bars on the light valve until a bar of a specific color bar is modulated by only image information corresponding to the specific color (see function of 12 in Figs. 8, 26, 30, and 31).

Regarding claim 6-8, Taoka discloses wherein the phase offset value is stored in a non-volatile memory (see 22, 32, and 41 of Figs. 26, 30, and 31) accessible by the controller.

Regarding claim 10, Taoka discloses wherein the plurality of spirally-arranged lens cells of the scrolling unit are cylindrical lenses (see paragraph [0100]).

Regarding claim 11, Taoka discloses wherein the scrolling unit is a disk (see 4 and 4A of Figs. 8, 26, 30, 31, and 34).

Regarding claim 12, Taoka discloses wherein the plurality of spirally-arranged lens cells are at least four spirally-arranged lens cells see 4A of Fig. 34).

Regarding claim 13, Taoka discloses wherein the plurality of color bars are scrolled by a rotation of the scrolling unit by the driving source such that when the scrolling unit rotates, a lens array of lens cells through which light passes appears to move rectilinearly in a direction toward or away from a rotation center of the scrolling unit (see 4A of Fig. 34).

Regarding claim 18, Taoka discloses further comprising a color separator (see 6a of Figs. 8, 26, 30, and 31) which separates a light beam emitted from the light source into a plurality of color beams by selectively reflecting the light beam according to wavelength.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taoka et al. (U.S. Patent Application Publication No. 2005/0213045) in view of Bierhuizen et al. (U.S. Patent No. 6,839,095).

Taoka discloses the claimed invention except for "first and second fly-eye lens arrays sequentially disposed on a light path between the scrolling unit and the light valve and which each comprising a plurality of lens cells which correspond one-to-one with the lens cells of the scrolling unit; and a relay lens which is installed between the second fly-eye lens and the light valve and which transmits light beams passed through the second fly-eye lens so that light beams of different colors are focused on different locations of the light valve."

Bierhuzen discloses first and second fly-eye lens arrays (see 120 and 122 of FIGURE 7) sequentially disposed on a light path between the scrolling unit and the light valve and which each comprising a plurality of lens cells which correspond one-to-one with the lens cells of the scrolling unit; and a relay lens (see 128 of FIGURE 7) which is installed between the second fly-eye lens and the light valve and which transmits light beams passed through the second fly-eye lens so that light beams of different colors are focused on different locations of the light valve.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the "projection system" of the Lambert reference with first and second fly-eye lens arrays and a relay lens, as taught by Bierhuzen in order to improve light collection efficiency from the light source (see col. 11, lines 13-15).

2. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taoka et al. (U.S. Patent Application Publication No. 2005/0213045) in view of Bierhuzen et al. (U.S. Patent No. 6,839,095) as applied to claim 14 above, and further in view of Lambert (U.S. Patent No. 6,288,815).

Taoka and Bierhuzen disclose the claimed invention except for "a plurality of cylindrical lenses, disposed respectively in front of and behind the scrolling unit so as to adjust the width of a light beam incident upon the scrolling unit".

Lambert teaches providing a plurality of cylindrical lenses (for example, see 12 and 13 of FIG. 1), disposed respectively in front of and behind the scrolling unit so as to adjust the width of a light beam incident upon the scrolling unit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the combined Taoka and Bierhuzen reference with a "plurality of cylindrical lenses disposed respectively in front of and behind the scrolling unit ", as taught by Lambert for purpose of pre-focusing the static color-stripe pattern into the "color scanner" and back converting the translation after the actual scanning function by the "color scanner" (see col. 9, lines 48-50 and 53-56).

3. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taoka et al. (U.S. Patent Application Publication No. 2005/0213045) in view of Lambert (U.S. Patent No. 6,288,815).

Taoka discloses the claimed invention except for "a plurality of cylindrical lenses, disposed respectively in front of and behind the scrolling unit so as to adjust the width of a light beam incident upon the scrolling unit".

Lambert teaches providing a plurality of cylindrical lenses (for example, see 12 and 13 of FIG. 1), disposed respectively in front of and behind the scrolling unit so as to adjust the width of a light beam incident upon the scrolling unit.



It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Taoka reference with a "plurality of cylindrical lenses disposed respectively in front of and behind the scrolling unit ", as taught by Lambert for purpose of pre-focusing the static color-stripe pattern into the "color scanner" and back converting the translation after the actual scanning function by the "color scanner" (see col. 9, lines 48-50 and 53-56).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rochelle Blackman whose telephone number is (571) 272-2113. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RB

**William Perkey**  
**Primary Examiner**